THE LIASSIC AND DOGGER DEPOSITS FROM THE MAGHREBIAN ATLAS IN THEIR TETHYIAN CONTEXT

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Located on the present-day South-Mediterranean Margin, the Maghrebian Atlas consists of an E-W intracratonical Chain. Its structuring during Jurassic times is characterized by the individualization of several palaeogeographic domains mainly marked by subsiding basins (e.g. Middle and High Atlases, in Morocco; Saharan Atlas, in Algeria, and Tunisian Trough, in Tunisia) bordered by residual platforms as more resistant blocks (e.g. Moroccan and Oranese Mesetas, in Morocco and Algeria respectively, N-S Axis and Tunisian Dorsale, in Tunisia). The spatio-temporal distribution as well as sedimentary records show that the onset of Liassic-Dogger deposits were controlled by sea level fluctuations and a tectonic activity related to the Tethyan rifting and the Atlantic opening.

In this work, N-S transects through the different palaeogeographical domains attempt to reconstruct the palaeogeographic and the geodynamic contexts of the Liassic-Dogger deposits.

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NEPTUNIAN DYKES AS WINDOWS INTO TIME OF SEDIMENTARY BREAKS. EXAMPLES FROM THE MIDDLE AND UPPER JURASSIC OF THE CZORSZTYN PELAGIC CARBONATE PLATFORM (WEST CARPATHIANS)

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Pelagic carbonate platforms (PCP) are characterized by discontinuous sedimentation with long hiatuses. These discontinuity surfaces are often associated with neptunian dykes that diagonally penetrate the underlying rocks. Dykes provide unique information about sedimentation and ecosystems of time intervals that are otherwise represented by gaps in the Jurassic successions. The Jurassic sedimentation on the Czorsztyn Ridge was characterized by dark shells during the Toarcian – Aalenian, biodetritic crinoidal limestones, biohermal and peribiohermal limestones during the Bajocian, condensed ammonitico rosso facies and bedded non-nodular facies during the Uppermost Bajocian – Lower Tithonian and bioclastic-micritic limestones and ammonite coquinas during the Tithonian – Berriasian. The main hiatuses encompass a part of the Lower Bajocian, a part of the uppermost Bajocian, Upper Bathonian to Early Oxfordian and late Lower Cretaceous, and may be related with both eustasy and/or tectonics (e.g. Lewandowski et al., 2005, Wierzbowski et al., 1999). The discontinuity surfaces are usually marked by mineralized and encrusted hardgrounds, lag deposits, facies

changes, and paleokarstification. Neptunian dykes are especially developed in relation with the Upper Bathonian – Early Oxfordian discontinuity surface. Similarly to Southern Alps and Central Apennines (Clari et al., 1995), the studied dykes were infilled with micritic, sometimes laminated sediments with uncommon macrofauna and common *Chondrites*-like bioturbation. Differences in colour, microfacies and/or lamination orientation suggest repetitive infiltration of sediment into the fissure system. They contain echinoderms, bivalves, gastropods, brachiopods and ammonites, scarce corals and serpulids, and very rare belemnites. Although limited in extent, detailed palaeontological evaluation of the dyke contents provide new biostratigraphic and palaeogeographic data. The fossil assemblages of the dykes are affected by size-selective preservation due to the sieve effect of the fissure system; ammonite microconchs or small-size specimens prevail, but the preservation is generally good. Macroinvertebrate associations from the dykes in Slovakia and Poland reveal that the faunas were relatively diverse and numerically abundant. Based on ammonites, the dyke infillings were dated as Lowermost Callovian, Lower Callovian Gracilis Zone, Middle Callovian Coronatum Zone and early Middle Oxfordian Plicatilis Zone. The ammonite spectra are dominated by necto-pelagic Phylloceratina and Lytoceratina. In the Oxfordian dykes, Ammonitina are represented mainly by Perisphinctidae, Oppeliidae, Lissoceratidae and Cardioceratidae, and by scarce Pachyceratidae and Aspidoceratidae. Boreal *Cardioceras* occurs in the early Middle Oxfordian Plicatilis Zone (in dykes), where it is relatively abundant and scarcely also in the Middle Oxfordian Transversarium Zone (*Miticardioceras*, not in dykes). The Callovian examples are dominated by Perisphinctidae and Hecticoceratinae. Moreover the Lower Callovian dykes yield representatives of Tulitidae and of the sub-Boreal Kosmoceratidae. The repetitive migration events of the sub-Boreal and Boreal ammonites took place between at least lowermost Callovian to Middle Oxfordian, corresponding to the time interval of the maximal overlap between Tethyan and sub-Boreal or Boreal provinces (Cariou et al., 1985). Faunal exchanges between different palaeogeographic provinces are also supported by occurrences of Oxfordian Boreal bivalves.

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